

Abstracts from the Seventh Annual Baylor University Medical Center Medical Education Research Forum 2021

Kashif Waqiee Ahmed, MBBS, ACRP-CP , Thomas Cox, PsyD, Jennifer Olvera, MBA, Natalie Gittus, JD, Kirsten Ryan, BS, and Cristie Columbus, MD

Medical Education Research Forum Committee, Baylor University Medical Center, Dallas, Texas

ABSTRACT

The Baylor University Medical Center Department of Medical Education hosted its seventh annual Medical Education Research Forum on April 21, 2021, to showcase the research efforts of its medical students, residents, and fellows. Thirty-six posters were shared and 18 oral presentations were given. Here we present 17 award-winning abstracts.

KEYWORDS Fellows; medical students; research forum; residents; scholarly activity

Each year, the Baylor University Medical Center (BUMC) Medical Education Research Forum has had more presentations and attendees, and this was our first virtual and one of the most successful events to date. Based upon the judges' scoring, prizes were awarded (*Table 1*). Medical Education is proud of the world-class research projects undertaken by the institution, for the teaching and mentoring that take place, and for the quality of presentations given by our trainees. A selection of abstracts is presented in this article, starting with the abstract awarded overall Outstanding Oral Presentation.

1. THE CLINICAL IMPACT OF THE GUIDELINE FOR MULTIPANEL GENETIC TESTING BY THE COLLABORATIVE GROUP OF THE AMERICAS ON INHERITED COLORECTAL CANCER ON CURRENT PRACTICE

Hanjoo Lee, MD*, Luke Hansen, BS, Trevor Borris, MD, Kelly Johnson, MPH, Sarah Stringfield, MD, and Katerina Wells, MD (*hanjoo.lee@bswhealth.org)

Approximately 35% of colorectal cancers (CRCs) are genetically linked, and hereditary syndromes account for 5% of CRCs. Recently, the Collaborative Group of the Americas on Inherited Colorectal Cancer (CGA-ICC) released a guideline for selection for genetic counseling. The institutional adherence rate to the guideline may be included in the National Accreditation Program for Rectal

Cancer standards. This study examined the impact of the guideline on the current practice of genetic counseling for rectal cancer at our institution. The rectal cancer registry for January 2018 to August 2020 was searched for patients meeting the criteria for multigene panel testing, and the medical chart was searched for the rate of genetic referrals made and actual genetic tests performed. Among 127 patients who underwent resection for rectal cancer, 30 patients (24%) met at least one criterion, and 15 patients (50%) who met a criterion received referral to genetic counseling. Eight patients (53%) underwent additional multipanel genetic testing. A recent Australian study showed that only 33% of patients at risk were referred for counseling. The dismal adherence rate to guidelines may be widespread. At our institution, 75% of patients with rectal cancer missed genetic counseling, which potentially leaves vulnerable first-degree relatives with undiagnosed CRC. Prospective data collection will continue to help identify barriers to improving patient education and timely referral to genetic counseling.

2. PEDUNCULATED SIGMOID LIPOMA AS A LEAD POINT FOR COLO-COLONIC INTUSSUSCEPTION

Kenneth Ford IV, BS*, Samantha Lopez, BS, Gaurav Synghal, MD, Yomi Fayiga, MD, Brittany Carter, MD,

Corresponding author: Kashif Waqiee Ahmed, MBBS, ACRP-CP, Department of GME Research, Baylor University Medical Center, 3500 Gaston Ave., 6 Roberts, Suite R0632, Dallas, TX 75246 (e-mail: Kashif.Ahmed@BSWHealth.org)

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Table 1. Awards from the Seventh Annual Medical Education Research Forum

Award	Winner
Outstanding Poster: Case Report	<ul style="list-style-type: none"> Medical student: Kenneth Ford IV, BS, Texas A&M College of Medicine: Abstract #2 Resident: Cristian Trejo, MD, diagnostic radiology: Abstract #3 Fellow: Rahul Sawhney, MD, cardiovascular disease – Plano: Abstract #4
Outstanding Poster: Original Research	<ul style="list-style-type: none"> Medical student: Salman Hasan, BS, Texas A&M College of Medicine: Abstract #5 Resident: Madeline Rasmussen, MD, general surgery: Abstract #6 Fellow: Rahul Sawhney, MD, cardiovascular disease – Plano: Abstract #7
Outstanding Poster: Patient Safety, QI, Healthcare Disparities, Wellness	<ul style="list-style-type: none"> Resident: John Kim, MD, internal medicine: Abstract #8 Fellow: Antoinette Matthews, MD, hematology/oncology: Abstract #9
Outstanding Oral Presentation: Case Report	<ul style="list-style-type: none"> Medical student (also Overall Medical Student Finalist): Keirsyn Criss, BS, Texas A&M College of Medicine: Abstract #10 Resident: Robert Weiss II, DDS, MD, oral & maxillofacial surgery: Abstract #11 Fellow: Gurjaspreet Bhattal, MD, cardiovascular disease – Plano: Abstract #12
Outstanding Oral Presentation: Original Research	<ul style="list-style-type: none"> Medical student: Salman Hasan, BS, Texas A&M College of Medicine: Abstract #13 Resident: Jennifer Misenheimer, MD, general surgery: Abstract #14 Fellow: Rahul Sawhney, DO, cardiovascular disease – Plano: Abstract #15
Outstanding Oral Presentation: Patient Safety, QI, Healthcare Disparities, Wellness	<ul style="list-style-type: none"> Medical student: Jared Eichner, BS, Texas A&M College of Medicine: Abstract #16 Resident (and Overall Resident Winner): Joseph Salganik, DO, physical medicine & rehabilitation: Abstract #17 Fellow (and Overall Fellow Winner/Overall Outstanding Oral Presentation Winner): Hanjoo Lee, MD, colon & rectal surgery: Abstract #1

QI indicates quality improvement.

Anuj Kandel, MD, and Kenneth Ford III, MD (*Kenneth94@exchange.tamu.edu)

Colonic lipomas are typically asymptomatic and uncommon benign tumors often found incidentally on colonoscopy. Their incidence is between 0.2% and 4.4% and they primarily involve the right colon, with only 20.1% of reported cases involving the left colon. Large (>2 cm) lipomas are more likely to cause symptoms such as abdominal pain, bowel habit changes, or bleeding secondary to obstruction or intussusception. We present the case of a 52-year-old man with 2 weeks of left lower quadrant pain and bloody stool. Computed tomography revealed a 4 cm, fat-density mass acting as a lead point for intussusception of the sigmoid colon. Surgical resection was successful, and histologic evaluation confirmed the diagnosis of a pedunculated colonic lipoma. This presentation of a pedunculated sigmoid lipoma acting as a lead-point for colo-colonic intussusception highlights the need to consider this entity in the differential diagnosis for colonic mass in an adult intussusception. Management by primary resection leads to complete resolution of symptoms and a highly favorable long-term prognosis.

3. ENDOVASCULAR COIL EMBOLIZATION OF A DISTAL VERTEBRAL ARTERY GIANT SERPENTINE ANEURYSM

Cristian Trejo, MD,* and Kenneth Layton, MD (*trejocristian7@gmail.com)

Vertebrobasilar fusiform aneurysms are an uncommon entity that can present with mass effect, ischemia/

infarction, or aneurysm rupture. Large fusiform aneurysms can develop incomplete thrombosis with nonendothelialized intrathrombotic channels, in which case they can be further characterized as giant serpentine aneurysms (GSA). When sufficiently large (>10 mm diameter), these aneurysms pose a significant risk for continued enlargement and rupture and generally necessitate intervention. Treatment of GSAs is highly individualized and remains controversial, with both surgical and endovascular techniques aimed at eliminating the vascular channel, halting aneurysm growth, and relieving mass effect. A 26-year-old woman with a history of whiplash injury from an earlier motor vehicle accident and chiropractic manipulations presented to an outside hospital with acute ataxia, facial droop, and dizziness. The outside computed tomography angiography described occlusion of the distal left vertebral artery due to extrinsic compression from a cerebellomedullary cistern mass. Upon transfer to BUMC, magnetic resonance imaging revealed a largely thrombosed vertebral artery aneurysm/pseudoaneurysm measuring up to 13 mm in diameter, which was confirmed on subsequent angiographic evaluation, as well as acute bilateral cerebellar infarcts. Coil embolization of the vertebral artery immediately proximal to the aneurysm was performed. The patient had no complications from the procedure and was discharged on aspirin/Plavix; her neurologic deficits resolved by the time of discharge. This case demonstrates successful endovascular treatment of a thrombosed GSA aimed at preventing recanalization.

4. TRANSCATHETER PULMONIC VALVE-IN-HOMOGRAFT REPLACEMENT IN A PATIENT WITH CARCINOID HEART DISEASE

Rahul Sawhney, DO*, Alexander Cubberley, MD, Jared Christensen, MD, Amr Idris, MD, Clarence Findley, MD, Zuyue Wang, MD, Srini Potluri, MD, Katherine Harrington, MD, and Molly Szerlip, MD (*rahul.sawhney@bswhealth.org)

We report a case of severe stenosis of a pulmonic valve homograft treated with transcatheter pulmonic valve replacement (TPVR). A 55-year-old white man with a history of tricuspid valve (TV)/pulmonic valve (PV) replacement due to severe regurgitation presented with 3 to 6 months of decreased exercise tolerance. Transthoracic echocardiogram demonstrated marked dilatation of the right atrium/ventricle, preserved left ventricular function, severe stenosis of the 30 mm PV homograft, and normal function of the 31 mm bioprosthetic TV. Due to the short interval since the patient's last sternotomy, his underlying carcinoid syndrome, and his working TV replacement, we elected to perform TPVR. He underwent serial dilation of the PV homograft from 11 to 28 mm, insertion of a 4.5 cm, 8 Zig, covered CP stent, and deployment of a 29 mm SAPIEN S3 valve in the pulmonic position. The stent and valve were delivered through a 65 cm Gore DrySeal hydrophilic introducer sheath. The PV gradient and peak velocity decreased to 7 mm Hg and 1.84 m/s, respectively. There was no perivalvular leak or damage to the tricuspid bioprosthesis. The patient was discharged home on postintervention day 1. At 2-week follow-up he reported an improvement in exertional dyspnea without complications. TPVR is being performed with increasing frequency as more data emerge on its safety and efficacy.

5. HIGHER COMPLICATIONS FOLLOWING ROBOTIC PARAESOPHAGEAL HERNIA REPAIR THAN AFTER LAPAROSCOPY EXCEPT IN HIGH-VOLUME CENTERS

Salman S. Hasan, BS*, Steven G. Leeds, MD, Edward P. Whitfield, BS, Gerald O. Ogola, PhD, and Marc A. Ward, MD (*salmanhasan@exchange.tamu.edu)

The use of robotic platforms in surgery is becoming increasingly common in practice and in residency training. We sought to identify the perioperative outcomes of robotic platforms compared to traditional laparoscopy in paraesophageal hernia (PEH) repair. A retrospective population-based analysis was performed using the National Inpatient Sample for 2010 to 2015. Adult patients who underwent laparoscopic or robotic PEH repairs were included. Multivariable linear and logistic regression models were used to assess the effects of robotic surgery on patient outcomes. A total of 33,790 patients were included. Overall complications were significantly higher in patients who underwent robotic PEH repair compared to laparoscopic PEH repair (13.4% vs 11.3%, $P < 0.01$). Specifically, esophageal perforation (0.7% vs 0.3%, $P < 0.01$) and respiratory failure (2.4% vs 1.6%, $P < 0.01$) were higher in robotic PEH patients. In a subset analysis of high-volume centers (>20 operations per

year), no differences were seen between laparoscopic and robotic groups in overall complications, esophageal perforation, or respiratory failure. Overall charges per surgery were significantly higher in the robotic group (\$56,400 vs \$41,600, $P < 0.01$). In conclusion, significantly more complications are associated with robotic PEH repair compared to laparoscopic PEH repair except in high-volume robotic centers (>20 operations per year).

6. ABILITY OF SUBJECTIVE SYMPTOMS TO PREDICT OBJECTIVE FINDINGS IN GASTROESOPHAGEAL REFLUX PATIENTS

Madeline Rasmussen, MD*, Marc Ward, MD, Luke Hansen, BS, Kevin Chin, MS, Christine Sanchez, MPH, Gerald Ogola, PhD, Steven Leeds, MD (*madeline.rasmussen@bswhealth.org)

There is no consensus for when surgical evaluation is indicated in gastroesophageal reflux disease (GERD). We sought to determine if the GERD Health-Related Quality of Life (HRQL) questionnaire scores correlated to objective findings in patients undergoing anti-reflux surgery as a way to predict when surgical consultation was warranted. A prospective database was used to look at patients undergoing anti-reflux surgery. Inclusion criteria included a diagnosis of GERD and an esophageal workup including GERD-HRQL questionnaire, upper endoscopy, barium esophagram, esophageal manometry, and pH monitoring. Logistic regression analysis was used to assess the relationship between the presence of objective findings and GERD-HRQL scores. For the 246 included patients, there was no significant correlation between GERD-HRQL score and DeMeester score (correlation coefficient = 0.23), or the presence or absence of a hiatal hernia regardless of size ($P = 0.89$). Patients with esophagitis had significantly higher average GERD-HRQL scores than those without esophagitis (40.1 ± 18.9 vs 30.4 ± 19.1 , $P < 0.0001$). Patients with a score of ≥ 40 had a 42% to 65% probability of having esophagitis, whereas a score of ≤ 30 lowered the chances of having esophagitis to <35%. Use of the GERD-HRQL questionnaire can potentially predict the chances of having erosive esophagitis despite medical therapy, which could help referring physicians prompt referral for surgical evaluation.

7. OUTCOMES OF IN-HOSPITAL CARDIAC ARREST BASED ON LOCATION

Rahul Sawhney, DO*, Jessica Meyer, MD, Ginger Tsai-Nguyen, MD, Casey Morris, MD, Alejandro Perez, MD, and Adam Mora, MD (*rahul.sawhney@bswhealth.org)

The incidence of in-hospital cardiac arrest (IHCA) is approximately 200,000 adult cases per year. On average, 55% of ICHA events occur on the floor as opposed to 45% in the intensive care unit (ICU) setting. Rates of survival to discharge are usually 15% to 20% and vary depending on the location of ICHA. We examined location of ICHA at our institution, a 914-bed quaternary care referral center, as

a predictor of survival to discharge and eventual disposition. All cases of IHCA over 5 years were reviewed, noting location of IHCA, immediate survival, survival to discharge (primary outcome), and discharge disposition (secondary outcome). A total of 1105 of 1115 ICHA events during the study period were examined; 36% occurred on the floor and 64% in the ICU. Overall immediate survival and survival to discharge, respectively, were 71% and 20%. Initial rhythm grouped by floor/ICU was asystole (16%/15%), pulseless electrical activity (69%/67%), and ventricular (15%/17%). Immediate survival and survival to discharge on the floor, respectively, were 74% and 26% vs 70% and 17% in the ICU. Disposition grouped by floor/ICU was home (11%/6%), long-term acute care facility (4%/5%), inpatient rehabilitation (4%/3%), skilled nursing facility (6%/3%), hospice (1%/1%), other hospital (1%/0.2%), and nursing home (0.3%/0). Our overall and ICU IHCA survival rates to discharge of 20% and 17%, respectively, were consistent with the national average. IHCA on the floor had a 9.4% higher chance of survival to discharge and 5.1% higher chance of discharge home than the ICU group.

8. REDUCING INAPPROPRIATE HYPERCOAGULABILITY WORKUPS

John Kim, MD*, Charis Durham, MD, Roma Bhandarkar, BS, Daphne Galan, BS, and Micah Burch, MD (*john.kim1@bswhealth.org)

It is common practice to perform a thrombophilia test when a patient presents to the hospital with a venous thromboembolic event. However, test results have minimal impact on patient management and are a poor predictor of recurrence. Proper thrombophilia testing with appropriate specialists can reduce medical costs and minimize risks of patient harm. This retrospective study analyzed the appropriateness of heritable thrombophilia testing at our institution and determined the financial savings possible if studies were not ordered inappropriately. Data of patients undergoing a thrombophilia workup over a 12-month period were extracted from Epic. The appropriateness of testing was based on the study of Connors et al and the guidelines of the American Association of Hematology. Preliminary results demonstrated that over \$450,000 was spent on thrombophilia testing in the past year, and most tests were inappropriately ordered, with labs often having to be repeated in the outpatient setting. An intervention was made within Epic, removing the “hypercoagulable workup” order set and creating a “Best Practice Advisory” popup to reduce inappropriate thrombophilia tests. Our study design will help reduce hospital costs and avoid unnecessary treatment with anticoagulation.

9. CONSIDERATION OF SIXTH-LINE THERAPY FOR MULTIPLE MYELOMA

Antoinette Matthews, MD*, Russell Hovermann, MD, and Houston Holmes, MD (*antoinette.day@bswhealth.org)

Multiple myeloma (MM) is an incurable malignancy consisting of monoclonal plasma cells. MM is associated

with cytopenias, renal dysfunction, hypercalcemia, and lytic bone lesions. Most MM patients progress through lines of therapy until their disease is refractory or their performance status is not adequate for ongoing therapy. Later-line therapy is not without risks, which can include hospitalization, transfusion, and death. To determine the risk-benefit ratio of sixth-line therapy for MM, we identified 55 MM patients from a Texas Oncology database who received 6+ lines of therapy. Via chart review, we collected patient demographics, MM stage, cytogenetics, and type and duration of therapy for treatment lines 1 to 6. The average duration of response was 898 days for first-line therapy, 504 days for second line, 491 days for third line, 407 days for fourth line, 406 days for fifth line, and 257 days for sixth line. While on sixth-line therapy, 29% required transfusions, 31% hospitalization, and 18% both. At progression, 78% moved onto seventh-line therapy. Nine percent died on sixth-line therapy, half of whom were on hospice. Our patient population was too small to identify any marker that would predict an adverse event. Nearly one-third of patients experienced an adverse event on sixth-line therapy, but the average duration of response was meaningful at 8.6 months, and 78% of patients were well enough at the end of sixth-line therapy to transition to seventh-line therapy. While there are risks associated with sixth-line therapy, it is reasonable to offer it because it can provide a meaningful response.

10. POSTTRAUMATIC DIAPHRAGMATIC HERNIA WITH NECROTIZING ENTEROCOLITIS

Keirsyn Criss, BS*, Samantha Fine, BA, Kenneth Ford IV, BS, Cristian Trejo, MD, and Kenneth Ford III, MD (*keirsynmcriss@tamu.edu)

Posttraumatic diaphragmatic hernias generally occur in the setting of blunt or penetrating trauma. Common causes include stab wounds, gunshots, impalements, and crush injuries such as motor vehicle crashes. The clinical presentation and development of symptoms can vary widely. We present the case of a 51-year-old man who presented to the emergency department with a 3-day history of left shoulder pain and nausea. Abdominal computed tomography and x-ray revealed a diagnosis of posttraumatic diaphragmatic hernia with a segment of infarcted bowel that demonstrated pneumatosis intestinalis. After his diagnosis, the patient was taken to surgery to repair the hernia and also had a partial colectomy for the resection of necrotic bowel. The patient reported a remote history of a motor vehicle accident 3 years earlier with crush injuries to his chest and atelectasis of the right lung base noted at the time of injury. This case highlights the significant delay that can occur between initial trauma and development of symptoms in a posttraumatic diaphragmatic hernia.

11. IMMEDIATE RECONSTRUCTION OF SEGMENTAL MANDIBULAR DEFECTS WITH TISSUE ENGINEERING

Robert O. Weiss II, DDS, MD*, and Likith V. Reddy, DDS, MD (*robertweiss02@gmail.com)

Ameloblastomas are benign, locally invasive odontogenic tumors that comprise approximately 1% of tumors within the jaws, with 66% located in the posterior mandible. If left untreated, these lesions can reach enormous size, resulting in considerable patient deformity and associated morbidity. Traditionally, defects >6 cm warranted either a free-flap fibula transfer or iliac crest autogenous graft. We treated two cases surgically with a large (>6 cm) mandibular segmental resection with immediate reconstruction using a reconstruction bone plate, inferior alveolar nerve allograft, and tissue engineering to include bone morphogenetic protein (rhBMP-2), bone marrow aspirate concentrate (BMAC), and cortical bone chips. Both patients had an uneventful postoperative course and healed appropriately, with success being determined by bone volume, facial counter, esthetics, and restoration of functionality. Advances in tissue engineering provide a legitimate alternative while decreasing the risks, length of hospital stay, and postoperative morbidity, as evidenced by the two case reports.

12. VENTRICULAR TACHYCARDIA WITH A TWIST

Gurjaspreet K. Bhattal, MD*, Hao-Yu Ren, MD, Deepika Gopalakrishnan, MD, Aasim Afzal, MD, and Zuyue Wang, MD (*gkb5105@bswhealth.org)

Monomorphic ventricular tachycardia (VT) has a broad differential. We present a case illustrating the importance of utilizing various imaging modalities for noninvasively eliciting the etiology of VT. A 55-year-old African American man presented to the emergency department for a postcoital monomorphic VT arrest requiring cardioversion. An electrocardiogram showed first-degree atrioventricular block, left anterior fascicular block, and right bundle branch block. A transthoracic echocardiogram showed a left ventricular ejection fraction of 50% with hypokinesis of the basal to mid anterior and anterolateral walls along with excessive right ventricular trabeculations. Cardiac catheterization showed normal coronaries. Cardiac magnetic resonance imaging revealed a diffuse epimyocardial scar along the basal and mid anterior, inferolateral, and anterolateral walls and a subendocardial scar along the basal and mid septum. The scar pattern suggested infiltrative disorders, inflammation, or rare dysplasia with fibrosis. No scar was seen in the right ventricle. Positron emission tomography revealed few small areas of mild fluorodeoxyglucose activity in the basilar to mid anterior wall, distal anterior wall near the apex, and basilar inferoseptal region. There was also evidence of old granulomatous disease in the liver. Given the classic electrocardiographic findings, clinical picture, and imaging findings, cardiac sarcoidosis was confirmed and steroids were initiated. Cardiac sarcoidosis as a cause of monomorphic VT remains an evasive diagnosis; a multimodality imaging strategy can help confirm the diagnosis.

13. ENHANCED RECOVERY AFTER SURGERY TO DECREASE COMPLICATIONS AND REDUCE LENGTH OF STAY IN FOREGUT SURGERY PATIENTS

Salman S. Hasan, BS*, Steven G. Leeds, MD, Edward P. Whitfield, BS, David T. Arnold, MD, Gerald O. Ogola, PhD, and Marc. A. Ward, MD (*salmanhasan@exchange.tamu.edu)

Enhanced recovery after surgery (ERAS) programs provide a framework for optimal perioperative care to improve postoperative outcomes. This study developed an ERAS protocol for foregut surgery patients and analyzed whether it improved outcomes. A prospectively maintained database was retrospectively reviewed for all patients undergoing bariatric surgery from October 2018 to January 2020. Propensity matching was used to match patients before and after ERAS implementation. A total of 266 patients (71 ERAS, 195 pre-ERAS) underwent foregut operations from October 2018 to January 2020. ERAS was implemented in October 2019; 44 patients were kept on the protocol and 16 deviated from it. Pre-ERAS patients had significantly more complications and a longer length of stay than ERAS patients ($P < 0.05$). The foregut ERAS protocol reduced complications by 81% and decreased length of stay by 16%. Patients who deviated from the ERAS protocol had a higher length of stay and higher risk of complications compared to the pre-ERAS patients. The ERAS protocol decreases complications and reduces length of stay in foregut patients.

14. DISPROPORTIONATE IMPACT OF COVID-19 ON LOW-INCOME AND MINORITY SURGICAL PATIENTS

Jennifer J. Misenhimer, MD*, Steven Leeds, MD, Christine Sanchez, MPH, Katherine Litman, BA, Gerald Ogola, PhD, and Marc Ward, MD (*jennifer.misenhimer@bswhealth.org)

This study evaluated how the COVID-19 pandemic has affected surgical patients, case volume, and surgical services in a large quaternary referral hospital. A retrospective review of patients undergoing surgical procedures was performed to evaluate patient demographics, payer information, patient outcomes, surgical case volume, and surgical case type based on four timeframes—pre-COVID (1/1/20–3/15/20), suspended (3/16/20–5/4/20), backlogged (5/5/20–6/14/20), and restoration (6/15/20–9/30/20)—involving 21,424 surgical cases. The suspended time frame (when all elective cases were cancelled) had the lowest number of cases, 2238 (10.4%; $P < 0.01$). During this time, the percentage of men undergoing surgery increased (53.8% vs 49.2% pre-COVID; $P < 0.01$). In addition, the number of black and Hispanic surgical patients increased compared to other time points (23.1% and 15.3%, respectively; $P < 0.05$). Medicaid and self-pay patients increased from 9.9% of all surgical patients pre-COVID to 16.3% during the suspended timeframe ($P < 0.01$) and remained elevated at all other time points (13.1% and 11.6%, respectively). The restoration phase had the largest number of cases overall (9177; $P < 0.01$). All service lines experienced similar trends except obstetrics (constant) and trauma (with increases during the suspended timeframe). COVID-19 disproportionately increased the number of low-income and minority surgical patients treated at this large quaternary referral hospital. Overall surgical volume increased compared to prepandemic levels.

15. NUMBER OF VASOPRESSORS AS A PREDICTOR OF SURVIVAL FROM IN-HOSPITAL CARDIAC ARREST

Rahul Sawhney, DO*, Jessica Meyer, MD, Alexander Whitaker, MD, Casey Morrison, MD, Ginger Tsai-Nguyen, MD, Alejandro Perez, MD, and Adam Mora, MD (*rahul.sawhney@bswhealth.org)

In-hospital cardiac arrest (IHCA) has an average survival to discharge rate of 15% to 20%. Single-center data on IHCA outcomes are uncommonly reported. We examined the relationship between number of vasopressors at the time of IHCA and survival outcomes at our institution, a 914-bed quaternary care referral center. All IHCA events were examined over a 5-year period. Of 1114 IHCA events that occurred, 996 were included. Among these patients, 53% were on 0 pressors, 19% on 1, 12% on 2, and 16% on ≥ 3 pressors. Initial survival was directly proportional to the number of pressors, with survival of 45% on 0 pressors, 53% on 1, 58% on 2, and 65% on ≥ 3 pressors. Survival to discharge was inversely proportional to the number of pressors, with 24% on 0, 21% on 1, 14% on 2, and 5% on ≥ 3 pressors. Initial rhythm of asystole occurred in 15% on 0 pressors, 16% on 1, 17% on 2, and 18% on ≥ 3 pressors; PEA in 68% on 0 pressors, 69% on 1, 67% on 2, and 66% on ≥ 3 pressors; and ventricular in 18% on 0 pressors, 15% on 1, 16% on 2, and 16% on ≥ 3 pressors. The number of pressors at the time of IHCA is directly proportional to immediate survival and inversely proportional to survival to discharge.

16. GRAPHIC MEDICINE? THE ILLUSTRATIONS AND TEXT OF DR. SEUSS INFORM COVID-19 PUBLIC HEALTH STRATEGIES

Jared Eichner, BS* (*jared.eichner@tamu.edu)

Graphic medicine can be construed broadly as illustrated storytelling in medicine. I sought medical examples in the work of Theodor Seuss Geisel, whose pen names included Dr. Seuss. Online searches were performed to identify examples of Geisel's work relating to medicine and to identify illustrations and text that communicate developing health risks and prevention opportunities related to COVID-19. At least four examples of Geisel's work related to medicine: three items to train soldiers in malaria prevention from Geisel's work as a World War II Army captain and *You're Only Old Once! A Book for Obsolete Children*, which was released on Geisel's 82nd birthday. In this book, a senior patient endures

endless waits and an Eyesight and Solvency Test. Like the bumbling World War II Private Snafu, examples of COVID-19 graphic medicine often illustrate correct and incorrect choices to suggest desired behavior. Regardless of whether his work falls within the strict definition of graphic medicine, Geisel has masterfully combined multiple comic images and text to tell medically relevant stories. The need for such stories is as pressing in the fight against COVID-19 as it was during Geisel's campaign 75 years earlier.

17. THE SPORTS INVENTORY FOR PAIN AND PROFILE OF MOOD STATES QUESTIONNAIRES AND RELATIONSHIP TO ADOLESCENT SPORTS CONCUSSION RECOVERY

Joseph Salganik, DO*, Jeffrey Mattis, ATR, Monica Bennett, PhD, Librada Callendar, MPH, and James Sterling, MD (*joseph.salganik@bswhealth.org)

Sport-related concussions (SRC) affect an estimated 1.0 to 1.8 million in the 0 to 18 age range per year. Multiple postinjury factors can influence clinical recovery and return to play. This study used two questionnaires—the Sports Inventory for Pain (SIP) and the Profile of Mood States (POMS)—to explore the role of inherent personality characteristics and emotional states, respectively, in SRC recovery. Participants diagnosed with a concussion by a physician who were within 10 days of injury were given POMS and/or SIP questionnaires. Primary outcomes were the number of days from first visit to progression to return to play protocol and number of days from first visit to clearance for return to play. The average age was 15.6 years, with 42% males. At first visit, the average SIPS total coping response was 30.5 (± 6.8), and the average POMS total mood disturbance was 13.7 (± 15.7). Average time from injury to return to play was 27.1 (± 13.9) days. Higher total mood disturbance was associated with an increased time to clearance (relative risk = 1.04, 95% confidence interval = 1.0, 1.1; $P = 0.03$). There were no significant associations between SIPS and time to clearance. Increased total mood disturbance in participants at initial visit predicted increased time to return to play and therefore recovery from concussion. Total coping response, however, did not have a statistically significant correlation with time for recovery. These results reinforce the importance of psychological response for recovery from concussion in adolescents.